

Terminations for steel wire ropes — Safety —

Part 4: Metal and resin socketing

ICS 53.020.30; 77.140.65

National foreword

This British Standard is the UK implementation of EN 13411-4:2002+A1:2008. It supersedes BS EN 13411-4:2002 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1 A1.

The UK participation in its preparation was entrusted by Technical Committee MHE/2, Wire ropes.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Terminations for steel wire ropes - Safety - Part 4: Metal and resin socketing

Terminaisons des câbles d'acier - Sécurité - Partie 4:
Manchonnage à l'aide de métal ou résine

Endverbindungen für Drahtseile aus Stahldraht - Sicherheit
- Teil 4: Vergießen mit Metall oder Kunstharz

This European Standard was approved by CEN on 11 November 2001 and includes Amendment 1 approved by CEN on 18 September 2008.

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Foreword

This document (EN 13411-4:2002+A1:2008) has been prepared by Technical Committee CEN /TC 168 "Chains, ropes, webbing, slings and accessories - Safety", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document supersedes EN 13411-4:2002.

This document includes Amendment 1, approved by CEN on 2008-09-18.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

A1 For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. **A1**

The other Parts of this European Standard are:

- Part 1: General purpose steel thimbles
- Part 2: Spliced eyes
- Part 3: Ferrule secured eyes
- Part 5: U-bolt wire rope gripped terminations
- Part 6: Asymmetric wedge socket clevis
- Part 7: Symmetric wedge socket clevis

The annexes A, B, and C are normative. **A1** The Annexes D, E, ZA and ZB are informative. **A1**

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard has been prepared to provide a means of conforming with the essential safety requirements of the Machinery Directive and associated EFTA regulations.

The methods of socketing described in this standard are based on historical experience and following them is considered to result in a rope termination having an efficiency of 100 % based on the minimum breaking force of the rope.

It is assumed that the included angle of the socket basket is not less than 9,5° nor greater than 18°.

It is also assumed that the socket is

- suitable for heating without changing the characteristics of the socket material when the socketing medium is molten metal;
- strong enough for the rope; and
- suitable for the purpose for which it is intended.

As the intended use of the rope should be known, resistance to fatigue loading is not covered.

While producing this standard it was assumed that negotiation occurs between the manufacturer and the user to decide which socketing medium is required.

1 Scope

This European Standard specifies the minimum requirements for the molten metal and resin socketing of steel wire ropes conforming to EN 12385 parts 4 to 10.

The standard covers only those requirements that ensure that the socketing is strong enough to withstand a force of at least 100 % of the minimum breaking force of the rope.

NOTE Rope terminations made by socketing in accordance with this European Standard can be used for determining the breaking force of wire ropes in accordance with annex A of EN 12385-1:2002.

Socketing by the methods and materials described in this standard are for use within the temperature limits given in informative annex E.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 59, *Glass reinforced plastics - Measurement of hardness by means of a Barcol impressor.*

EN 12385-1:2002, *Steel wire ropes – Safety – Part 1: General requirements.*

prEN 12385-2, *Steel wire ropes – Safety – Part 2: Definitions, designation and classification.*

ISO 75-2, *Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite.*

3 Terms and definitions

For the purpose of this European Standard, the terms and definitions given in prEN 12385-2 together with the following apply. Further nomenclature is given in Figure 1.

3.1

socket

type of wire rope termination incorporating a socket basket

3.2

socket basket

area of a socket in which a brushed rope end is secured using a socketing medium

3.3

serving

wrapping, usually of wire or strand, for the purpose of securing a rope end to prevent its unlaying

3.4

primary serving

serving applied prior to socketing and remaining in place at least until the socketing operation has been completed

3.5

secondary serving

serving applied and subsequently removed at various stages of the socketing operation

3.6

gelling

change in condition of resin from liquid to a semi-solid, jelly-like composition